

## CHAPTER IX. *Dental (Oral) Health*

### A. Overview

Dental (Oral) Health covers a wide range of conditions that affect individuals of all ages and ethnic backgrounds. These diseases can be separated into many different categories. These disease categories include: Developmental diseases; Neoplastic diseases; Immunologic diseases; Infectious diseases; Acquired diseases; and Trauma.

**1. Developmental Diseases.** This category of diseases is genetic, environmental, or random in their cause. They include disorders such as cleft lip and palate, hemifacial microsomia, or oral manifestations of various types of syndromes. These disorders can also be isolated to the teeth. Examples of these include dentogenesis imperfecta (poor development of tooth structures), and partial or even total anodontia (lack of development of teeth).

- The incidence of cleft lip with or without cleft palate is related to ethnic background. Caucasians are 1 in 800 births; Japanese are 2.1 in 1,000 births; Blacks are 0.3 in 1,000 births.<sup>1</sup> This incidence of cleft palate in the native Hawaiian population is unknown.
- The Asian population in Hawai'i makes up approximately 46 percent of the population, followed by Caucasian with 27 percent, Hawaiian with 19 percent, and others at 8 percent.<sup>2</sup> With the higher percentage of Asian population in Hawai'i, the incidence of cleft lip is most likely higher than the U.S. average.
- Care for these patients in Hawai'i is provided through a team, multidisciplinary approach. The two main teams at this time are the Craniofacial team at The Queen's Medical Center, and the team at the Kaiser Medical Center.
- Financial assistance in medical coverage for these patients is provided through private medical insurance or through Hawai'i state assistance through the Children with Special Health Needs.
- Due to the nature of these conditions, families require assistance coordinated through multiple disciplines. These include social services, speech pathology, special education needs, genetic counseling, nursing assistance, psychological support, dental support, surgeons such as otolaryngologist, oral and maxillofacial surgeons, and plastic, reconstructive and dental specialists such as orthodontists and prosthodontists.
- Patients with non cleft-related craniofacial (imbalance in facial bones) disorders have been refused medical coverage since 1992, on the grounds that treatment is cosmetic only, with no functional benefit. Non-cleft craniofacial disorders lead to multiple functional defects such as difficulty in mastication (chewing), speech dysfunction, nasal airway disturbances, temporomandibular (jaw joint) dysfunction, and sleep apnea.

**2. Neoplastic Diseases.** This category of diseases includes both malignant and benign tumors. Malignant tumors of the oral cavity are usually, but not always, related to behavioral habits such as tobacco or alcohol use. The earlier these tumors can be identified, the easier their treatment, and more importantly the improved long-term survival of the individual. There is a large number of benign tumors which affect the oral region. These occur in both the soft tissue and bony regions of the oral cavity. Many of these are Odontogenic (tooth) in origin. Some of these tumors, although benign, can behave aggressively. Therefore, as with malignant tumors, early detection is important in their successful treatment.

- Epidermoid carcinoma is the most common cancer of the oral cavity.
- Approximately 43,000 cases of oropharyngeal and laryngeal cancer were diagnosed in the United States in 1990.<sup>3</sup> The annual incidence of oral cavity and pharyngeal cancers is 11.3 per 100,000. The overall survival rate of oral cancers is only 53 percent.<sup>4</sup>
- Hawai'i deaths from oral and pharyngeal cancer: Male – 17 per 100,000; Female – 7.5 per 100,000.<sup>5</sup>
- Nearly all of epidermoid carcinomas are related to environmental causes—primarily the chronic use of tobacco and alcohol. The Hawai'i incidence of tobacco use is 20 percent.<sup>6</sup>
- Early detection and treatment greatly increases the long-term survival of oral cancer.
- Since nearly all cancers of the oral cavity and pharynx are related to chronic alcohol and tobacco use, prevention can greatly impact the overall incidence. This is especially true with regard to teen use of tobacco and alcohol.
- Benign and odontogenic neoplasms of the oral cavity are relatively common. Most are not related to environmental factors. Early detection is key to simplified treatment.

**3. Immunologic Diseases.** This category of diseases includes a group of disorders that affect the oral cavity as isolated or oral manifestations of a systemic disease. These disorders are rarely life threatening, but can cause considerable pain and difficulty in eating for those who are afflicted. Examples of these diseases include lichen planus, sjogrens, or pemphigus disorders.

**4. Infectious Diseases.** This category of diseases includes a wide range of infections that can afflict a wide range of individuals. Many of these can be preventable, such as sexually transmitted diseases or infections caused by dental decay. Some of these disorders can be oral manifestations of a sexually transmitted disease, such as syphilis, herpes, and AIDS. Many of these infections can be treated in an outpatient setting, but some can be severe enough to require prolonged hospitalizations and surgeries. This more severe category of infections include odontogenic (tooth) infections or osteomyelitis of the jaws.

- HIV infection is a systemic disease, which compromises the individual's immune system. It can manifest itself in the oral region in many ways. Some of these include candidiasis infectious, Kaposi sarcoma, herpetic outbreaks, aphthous ulcers, and periodontal disease.
- Oral manifestations of AIDS are sometimes the first clinical findings of HIV infections.

**5. Acquired Diseases.** This group of diseases is acquired after birth. Of all disease categories, this group is one of the most preventable. When people think of dental disease, this is the group of diseases they most commonly think of. They include tooth decay, periodontal disease, and Temporomandibular Joint (TMJ) disease. This category of diseases affects more individuals than any of the other categories. These diseases lead to infections, tooth loss, and considerable disability of the individual's oral health and ability to eat.

- Dental decay is the most prevalent dental disease, followed by periodontal disease.
- U.S. expenditures for dental care totaled more than \$27 billion in 1988.<sup>7</sup> In 1996, dental-related illness accounted for 6.4 million days of bed disability, 14.3 million days of restricted activity, and 20.9 million days of lost work.<sup>8</sup>
- 72.7% of Hawai'i's six to eight year old children had one or more caries, compared to the national average of 35 percent for the same population.<sup>9</sup>
  - 15.85% of 5 year olds in Hawai'i have Baby Bottle Tooth Decay (3 or more upper anterior primary teeth), as compared to 5 percent of mainland 5 year olds. Native Hawaiians have a rate of 20.79%, Filipinos 32.19%, and Moloka'i children 32.67%.<sup>10</sup>
  - 18.54% of Hawai'i 6 year olds have caries free permanent teeth, compared to 94.4% of 6 year olds nationally.
  - The mean dft (mean number of decayed teeth per child) for Hawai'i children ages 5-9 is 3.658, as compared with 1.884 nationally. Native Hawaiians' mean dft is 4.24, Southeast Asians' is 5.63, and Filipinos is 5.65.<sup>11</sup>
  - 33.11% of children have unmet treatment needs.
- The incidence of dental disease in the elderly (over 65) increases, when compared with the overall population.
  - 12.6% of Hawai'i's population in 1995 was elderly. This is a total of 150,000 people, and is expected to grow to 188,000 by 2005.<sup>12</sup>
  - Medicare does not provide for dental care, other than emergency care.
  - Hawai'i has 17.7 nursing home beds per 1,000. 1997 OBRA regulations require all nursing home care facilities to provide dental care for residents.<sup>13</sup>
- Community water fluoridation has been shown to be the most effective, and least expensive method to decrease dental decay. Fluoridation causes a 40-60% decrease in dental decay.<sup>14</sup> Systemic fluoride has been shown to provide beneficial effects to teeth while they are forming and also after they have erupted into the mouth.
- Access to dental care for elderly and indigent patients in Hawai'i is a concern.
  - There is limited assistance. QUEST assistance in 1996 suspended all coverage of dental care for adults, other than emergency care.
  - The Non-insured population has grown due to economic downturn.
  - Only six dentists staff state clinics. They treat some elderly that fit strict income criteria and the severely disabled and handicapped. There is no dental treatment available to the indigent or most elderly through these clinics. State clinics include:
    - Diamond Head Clinic
    - Lanakila Dental Clinic (Kalihi)
    - Leeward Dental Clinic (Pearl City)
    - Windward Dental Clinic (Windward Health Center)

Maluhia Dental Center

Leahi Hospital Dental Clinic (Long-term in-house patient care.)

- There are some non-profit private clinics that provide care based on a sliding income scale. They include:

Kalihi Palama Dental Clinic

Kokua Kalihi

Wai`anae Coast Comprehensive Center

Mobile van on the Big Island through Catholic Charities

Mobile van on Kaua`i through the Native Hawaiian Help Organization

Volunteer Clinic in IHS (O`ahu)

- Access to care for the insured population has problem areas as well.
  - Dental insurance is available in Hawai`i through Hawai`i Dental Service, HMSA, HMAA, and other companies.
  - Dental reimbursements to dentists have fallen to the 50% level when compared to the nation,<sup>15</sup> due to the high penetration of dental insurance.
  - Managed care in dentistry, such as capitation, limits patients' freedom of choice and access to quality care.
  - Although dental insurance premiums have increased over the years, the yearly maximum available for patient care has, for the most part, remained unchanged in the past 20 years.
  - There are a few IPAs in Hawai`i which provide care through a closed panel setting.
  - Dental insurance fees are usually 40 percent to administrative and reserves, 60 percent to patient care.
- The total number of licensed dentists in 1995 was 1,045. This is 1 dentist for every 1,100 population. This is approximately 1.5% above the national average.<sup>16</sup>
- Temporomandibular Joint (TMJ) or jaw joint disease affects as much as 5 percent of the population. Disorders of the TMJ can lead to facial pain, difficulty in eating, and headaches. More severe TMJ symptoms can be debilitating to the affected individual.
  - Most TMJ disorders can be treated conservatively with a high degree of success. More severe cases may need surgical care as with any other joint in the body.
  - Hawai`i is unique in that local medical insurance excludes all coverage for TMJ disorders for affected individuals.

**6. Trauma.** Trauma can afflict both the teeth and/or the facial bones. Trauma is the result of various causes. These include motor vehicle or industrial accidents, sports, and interpersonal or domestic violence. Types of trauma can be as mild as a broken tooth, which can be easily treated in an outpatient setting, or much more severe, such as multiple facial bone fractures and soft tissue trauma that can require hospitalizations and the need for rehabilitation. Access to quality care and access to proper social services support is important in caring for these individuals.

- Facial fractures are due to multiple causes: vehicle (auto, bicycle, moped) accidents, domestic violence, interpersonal violence, sports injuries, and industrial injuries.

- Multiple disciplines are needed to adequately care for these patients, such as medical services, social services, nutritional services, physical and occupational therapy, and legal aid.
- Financial assistance is provided through standard health insurance, workers' compensation, no-fault insurance, QUEST, and Hawai'i State Crime Victims Assistance Program.

**B. Measures/Indicators****1. Process Measures**

<b>MEASURE NUMBER</b>	<b>MONITOR</b>	<b>DEFINITION</b>	<b>GUIDELINE</b>	<b>HAWAII EXPERIENCE</b>	<b>GUIDELINE/ HAWAII EXPERIENCE SOURCE</b>	<b>CROSS- REFERENCE</b>
DHP-1.1	Cleft Patient Care		Assure early access to multidisciplinary team for coordinated care	No organized protocol. Referral made by individual physician.		<i>Maternal, Infant and Child Health</i>
DHP-1.2	Craniofacial Patient Care		Assure insurance coverage for functional disorders	Exclusion of coverage since 1992.		
DHP-1.3	Craniofacial Patient Care		Continued State support of craniofacial team and patient care	State assistance through Children with Special Health Needs	Hawai'i State Department of Health	<i>Maternal, Infant and Child Health</i>
DHP-2	Cancer Detection		Continue to support early detection and public education	Health fairs		
DHP-3	Tooth Decay Prevention		Improve prevention of tooth decay by education and fluoridation	Military base water fluori- dated. Public water is not. fluoridated.		
DHP-4.1	Access to Dental Care for the Elderly and Indigent		Support and expand public clinics to see more patient	Limited state clinics and six State-employed dentists.	Hawai'i Department of Health	

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MEASURE NUMBER	MONITOR	DEFINITION	GUIDELINE	HAWAII EXPERIENCE	GUIDELINE/HAWAII EXPERIENCE SOURCE	CROSS-REFERENCE
			numbers and expand clinics to outer islands Increase number of State employed DDS to serve population			
DHP-4.2	Access to Dental Care for the Elderly and Indigent Private Sector		Give DDS tax incentives to see non-paying patients Monitor number of emergency room visits for dental emergencies	Limited not-for-profit clinics; clinics through Queens and St. Francis Medical Centers; Voluntary HDA Dentists offer senior citizens discounts; Private DDS give emergency care	Hawaii Dental Association	

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MEASURE NUMBER	MONITOR	DEFINITION	GUIDELINE	HAWAII EXPERIENCE	GUIDELINE/ HAWAII EXPERIENCE SOURCE	CROSS-REFERENCE
DHP-4.3	Access to Dental Care for Insured Population.		Encourage fair reimbursement for quality dental care Explore delivery systems with less administrative costs such as Direct Reimbursement Assure patient freedom of choice	Hawai'i Dental Service, HMSA, HMAA, United Concordia, other	Hawai'i Dental Association	
DHP-4.4	Tempo-romandibular Joint Disease (TMJ)		Expand insurance coverage to assist individuals with this disorder	All coverage excluded		
DHP-5.1	Oral Trauma		Support victims of crimes that suffer facial injuries	Crime Victims Assistance Program		<i>Preventable Injuries and Violence</i>
DHP-5.2	Trauma Prevention		Support programs that address domestic and interpersonal violence	No local data		<i>Preventable Injuries and Violence</i>



## 2. Outcome Measures

MEASURE NUMBER	MONITOR	DEFINITION	GUIDELINE	HAWAII EXPERIENCE	GUIDELINE/ HAWAII EXPERIENCE SOURCE	CROSS-REFERENCE
DHO-1.1	Oral Cancer		Decrease deaths from oral cancer in Hawai'i to 11.3/100,000	17/100,000	National Cancer Institute	<i>Cancer</i>
DHO-1.2	Cancer Prevention		Reduce cigarette use to 15%	20.4%	<i>Health Trends in Hawai'i</i>	<i>Cancer; Behavioral Health</i>
DHO-2	Infectious Diseases		Reduce rates of sexually transmitted diseases	To Be Updated By SHCC's PDC	CDC, Hawai'i Department of Health	<i>Infectious Diseases; Maternal, Infant and Child Health</i>
DHO-3.1	Tooth Decay Incidence		Reduce decay incidence to 50% among 6 to 8 year olds	72.7% among 6 to 8 year olds	<i>Healthy Hawai'i 2000</i> Hawai'i Department of Health	<i>Maternal, Infant and Child Health</i>
DHO-3.2	Baby Bottle Tooth Decay Incidence (BBC)		Reduce baby bottle caries to 5.0% among 5 year olds	15.85% of 5 year olds	<i>Healthy Hawai'i 2000</i> Hawai'i Department of Health	<i>Maternal, Infant and Child Health</i>
DHO-3.3	Decayed Teeth Incidence (DFT)		Reduce dft to national rate of 1.88%	3.65% among children ages 5-9 years	Hawai'i Department of Health	<i>Maternal, Infant and Child Health</i>
DHO-3.4	Tooth Decay Among Minority Populations		Reduce decay to the general population percentage	Native Hawaiian 20% BBC, 4% dft; Filipino 32% BBC, 5.65% dft	Hawai'i Department of Health	
DHO-4	Trauma and		Decrease	15% in 1993	<i>Healthy Hawai'i</i>	<i>Preventable</i>

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MEASURE NUMBER	MONITOR	DEFINITION	GUIDELINE	HAWAII EXPERIENCE	GUIDELINE/ HAWAII EXPERIENCE SOURCE	CROSS- REFERENCE
	Substance Abuse		incidence of substance abuse to 14% by 2010		2000	<i>Injuries and Violence; Behavioral Health</i>

## **C. Community Specific Issues**

Hawai'i communities, primarily through SAC representatives, have noted the following gaps in the oral health care for individuals in the state of Hawai'i:

- High incidence of dental decay among individuals within the State, especially among the Native Hawaiian and Filipino populations. Hawai'i has poor performance on all measures when compared to the national statistics.
- Hawai'i lags far behind the nation in prevention of dental disease, as seen in the high percentage of decay, and baby bottle caries among Hawai'i children. There is no fluoridation of water in Hawai'i except on military bases. This one preventive step could greatly decrease the incidence of dental disease in the State by as much as 40-60%. There is a need for education on the effects of the local diet on the increased incidence of dental decay.
- Care provided through state funded programs has been severely limited since February 1996 when the State Department of Human Services made dental care optional, and would only provide for emergency care with all dental work excluded. This puts a financial burden on those individuals that have difficulty paying for any dental care. An expansion of coverage to preventive dental care would greatly benefit these individuals who are dependent on QUEST to provide for their care.
- There are limitations to access to care for the elderly and the indigent populations in the state of Hawai'i, especially on the Neighbor Islands. The state clinics are available for only the severely handicapped and elderly who meet strict financial guidelines. Expansion of these clinics would help those in need. The Hawai'i Dental Association has recognized the problem and has set up a program to give senior citizen discounts for dental care. They are exploring a similar program for non-insured individuals. The State should continue to support non-profit groups that provide care to these at-risk individuals.
- Insurance has restricted coverage for preventive and specific diseases such as TMJ disease and Craniofacial disorders. Some studies have been done that show minimal impact of some of these diseases on overall insurance expenses. Companies should be encouraged to provide assistance to individuals who have these conditions.

## **D. Priorities**

**1. Prevention.** Emphasis on prevention, including education, diet modification, and fluoridation.

**2. Access.** Expand state-assisted clinics to provide basic dental care for the at-risk individuals in Hawai'i.

## **NOTES**

- <sup>1</sup> Syndromes associated with cleft lip and palate. *Oral and Maxillofacial Surgery Clinics of North America*, Vol. 3, No. 3, August 1991.
- <sup>2</sup> *Health Trends in Hawai'i: A Profile of the Health Care System*, Third edition, 1997.
- <sup>3</sup> National Cancer Institute, US Department of Health and Human Services, 1990.
- <sup>4</sup> US Department of Health and Human Services. *Cancers of the oral cavity and pharynx*. Centers for Disease Control, National Institutes of Health, 1991.
- <sup>5</sup> Surveillance, Epidemiology and End Results (SEER) Program, National Cancer Institute, 1989-90.
- <sup>6</sup> *Health Trends in Hawai'i*, op. cit.
- <sup>7</sup> U.S. Department of Commerce. "Survey of Current Business," Washington D. C. July, 1990.
- <sup>8</sup> Reisine, S. "A Longitudinal Study of Work Loss Related to Dental Disease," *Social Science and Medicine* 21(12): 1985.
- <sup>9</sup> *Oral Health in Hawai'i's Public Elementary School Population*, Hawai'i Department of Health, 1986.
- <sup>10</sup> Ibid.
- <sup>11</sup> Ibid.
- <sup>12</sup> *Cancers of the oral cavity and pharynx*, op. cit.
- <sup>13</sup> *Journal of Dental Education*, Vol. 57, No. 12, 1993.
- <sup>14</sup> Featherstone, 1990.
- <sup>15</sup> *1995 Survey of Dental Fees*. ADA Survey Center.
- <sup>16</sup> Hawai'i State Department of Commerce and Consumer Affairs, July 1, 1995.